

ABSTRACT OF THE DISCLOSURE

An electron emitter includes an emitter element made of a dielectric material, and an upper electrode and a lower electrode. A drive voltage is applied between the upper electrode and the lower electrode for emitting electrons from the emitter element. The upper electrode is formed on an upper surface of the emitter element, and the lower electrode is formed on a lower surface of the emitter element. The emitter element is exposed through a plurality of through regions of the upper electrode. Peripheral surfaces around the through regions facing the emitter element are spaced from the emitter element.